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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,383	01/05/2001	Bruce M. Schena	IMMR-0029B	6408

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EXAMINER	
LEWIS, DAVID LEE	
ART UNIT	**PAPER NUMBER**
2629	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/755,383	SCHENA ET AL.
	Examiner	Art Unit
	David L. Lewis	2629

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 September 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *81-111* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *81-111* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. **Claims 81-111 are rejected under 35 U.S.C. 102(e) as being anticipated by Hannaford et al. (5642469).**

As in clam 81, Hannaford et al. teaches of a device, **figure 1 item 10,**

comprising: a sensor having a planar surface, **figure 4 item 20**, configured to measure at least one of a position or movement of a protrusion, in contact therewith along the planar surface, **figure 4 item 12, column 4 lines 1-6 and 49-55**. Wherein the planar surface structure 20 allows sensing encoders to monitor movement in the xy or z plane, as monitored by a protrusion 12 position.

wherein the protrusion is coupled to a manipulandum, **figure 4 item 12 and figure 2 item 14**. wherein protrusion 12 is coupled to a manipulandum 14

the sensor configured to measure a force applied to the planar surface when the manipulandum is moved in a direction substantially perpendicular to the planar surface, **column 3 lines 6-10**, **column 4 lines 1-6, 20-24, and 49-55,** wherein force in the z direction is measured as defined by a third degree of freedom.

wherein the sensor is configured to output a sensor signal associated with at least one of the sensed position or movement or force, **column 1 lines 52-67, column 2 lines 5-12 and 20-23**; wherein the output sensor signal is processed to be visually and sensually experienced by the user.

and an actuator coupled to and spaced apart from the sensor, **figures 4 and 5**, **column 1 lines 25-31, column 3 lines 6-10, column 4 lines 49-55**

the actuator configured to receive a feedback signal associated with the sensor signal and generate haptic feedback based on the feedback signal, **column 1 lines 25-50, column 2 lines 1-20.** wherein the actuator exhibits force resistance reflected back to the control point to be experienced by the user.

As in clam 96, Hannaford et al. teaches of a device, **figure 1 item 10**

comprising: a manipulandum moveable in an x-y plane and having a protrusion extending from a portion thereof, the manipulandum configured to operate a graphical object in a graphical user interface, **figure 2 item 14, figure 4 item 12, column 2 lines 1-30, column 3 lines 60-67, column 4 lines 1-6, column 8 lines 50-63**; where the minpulandum 14 is placed at a protrusion 12, moveable in 3 degrees of freedom and is monitored in a virtual reality environment

a sensor having a planar surface configured to be in contact with the protrusion and measure at least one of a position or movement of the protrusion along the planar surface, **figure 4 item 12 and 20, column 4 lines 1-6 and 49-55**. Wherein the planar surface structure 20 allows sensing encoders to monitor movement in the xy or z plane, as monitored by a protrusion 12 position.

the sensor configured to measure a force applied by the protrusion to the planar surface when the manipulandum is moved in a direction substantially perpendicular to the planar surface, **column 3 lines 6-10, column 4 lines 1-6, 20-24, and 49-55,** wherein force in the z direction is measured as defined by a third degree of freedom.;

and at least one actuator configured to provide haptic feedback based on the measured force applied to the sensor, **figures 4 and 5, column 1 lines 25-31,**

column 3 lines 6-10, column 4 lines 49-55. wherein the actuator exhibits force resistance reflected back to the control point to be experienced by the user.

As in clam 107, Hannaford et al. teaches of a method, comprising: measuring at least one of a position or a motion of a protrusion in contact with a planar surface of a sensor, wherein the protrusion is coupled to a manipulandum; **figure 4 item 12 and 20, column 3 lines 6-1-, column 4 lines 1-6 and 49-55**. Wherein the planar surface structure 20 allows sensing encoders to monitor movement in the xy or z plane, as monitored by a protrusion 12 position.

measuring a force applied from the protrusion to the planar surface of the sensor when the manipulandum is moved in a direction substantially perpendicular to the planar surface; **column 3 lines 6-10, column 4 lines 1-6, 20-24, and 49-55,** wherein force in the z direction is measured as defined by a third degree of freedom

receiving a feedback signal associated with at least one of the detected position, motion, or force of the protrusion, the feedback signal based on data values associated with a graphical object in a graphical display, the graphical object controlled by the manipulandum; **column 1 lines 25-67, column 2 lines 1-20.** wherein the actuator exhibits force resistance reflected back to the control point to be experienced by the user.

and outputting haptic feedback to the manipulandum via an actuator upon receiving feedback signal. **column 1 lines 25-67, column 2 lines 1-20.** wherein the actuator exhibits force resistance reflected back to the control point to be experienced by the user.

As in clam 82, Hannaford et al. teaches of wherein a magnitude of the haptic feedback is proportional to the measured force, column 2 lines 10-25, where the user experiences the sensation of cutting through the virtual tissue in proportion to the texture given to the tissue and the force applied to the control point.

As in clam 83, Hannaford et al. teaches of wherein the haptic feedback is a friction sensation, column 2 lines 10-25,

As in clam 84, Hannaford et al. teaches of wherein the sensor signal updates data values associated with a graphical object associated with the manipulandum in a graphical display, column 2 lines 10-25.

As in clam 85, Hannaford et al. teaches of wherein the sensor signal is associated with a velocity of the protrusion along the planar surface, column 1 lines 39-67, column 2 lines 10-25, wherein said velocity is inherent to the real

time simulation, textured tissue, and frictionless motion of the user manipulated device.

As in clam 86, Hannaford et al. teaches of wherein the haptic feedback is a texture sensation, column 2 lines 15-20.

As in clam 87, Hannaford et al. teaches of wherein the texture sensation is modulated as a function of a detected degree of force, column 2 lines 10-25.

As in clam 88, Hannaford et al. teaches of wherein the actuator is configured to generate the haptic feedback when the measured force exceeds a desired threshold, column 2 lines 10-25, wherein the tissue having shape, texture and force resistance variables at different location provides for feedback when different tissue locations apply a specific force resistance.

As in clam 89, Hannaford et al. teaches of wherein the measured force is operative to control an indexing function of the device, column 2 lines 10-5, wherein the user as able to trace virtual objects and point them out within the virtual environment, said pointing out feature being equivalent to indexing..

As in clam 90, Hannaford et al. teaches of further comprising a base upon which the sensor is located, the manipulandum configured to move relative to the base, figure 4 item 78.

As in clam 91, Hannaford et al. teaches of further comprising a linkage coupled to manipulandum, wherein the linkage is configured to allow motion of the manipulandum relative to the base, column 1 lines 29-31, column 4 lines 25-55, wherein various links are taught.

As in clam 92, Hannaford et al. teaches of wherein the manipulandum is a computer mouse, column 1 lines 10-30, column 2 lines 1-11, wherein said manipulator or end-effector serves the functional equivalent of a mouse, being a known substitute.

As in clam 93, Hannaford et al. teaches of wherein the sensor is a planar photodiode, column 9 lines 46-53, wherein said optical encoder reads on said planar photodiode.

As in clam 94, Hannaford et al. teaches of wherein the protrusion extends from the linkage, figure 4 item 12.

As in clam 95, Hannaford et al. teaches of wherein the linkage is further coupled to the actuator., column 1 lines 29-31, column 4 lines 25-55.

As in clam 97, Hannaford et al. teaches of further comprising a control processor configured to send a control signal to the actuator to generate the haptic feedback, the control signal based on at least the measured force, column 2 lines 1-30, column 8 lines 50-60.

As in clam 98, Hannaford et al. teaches of wherein the haptic feedback output by the actuator includes a damping sensation, wherein a magnitude of the damping sensation is based on at least the measured force, column 2 lines 1-20, said damping being equivalent to force resistance and texture.

As in clam 99, Hannaford et al. teaches of wherein the damping sensation is proportional to the measured force, column 2 lines 10-30.

As in clam 100, Hannaford et al. teaches of wherein the haptic feedback output by the actuator includes a friction sensation, a magnitude of the friction sensation based on at least the measured force, column 2 lines 10-30, said friction sensation equivalent to said force resistance and texture..

As in clam 101, Hannaford et al. teaches of wherein the friction sensation is proportional to the measured force, column 2 lines 10-30.

As in clam 102, Hannaford et al. teaches of wherein the haptic feedback output by the actuator includes a texture sensation, a magnitude of the texture sensation based on at least the measured force, column 2 lines 10-30.

As in clam 103, Hannaford et al. teaches of, wherein the texture sensation is proportional to the measured force, column 2 lines 10-30.

As in clam 104, Hannaford et al. teaches of further comprising a linkage coupled to manipulandum, wherein the linkage is configured to allow motion of the manipulandum relative to a base, column 1 lines 29-31, column 4 lines 25-55, wherein various links are taught..

As in clam 105, Hannaford et al. teaches of wherein the protrusion extends from the linkage, figure 4 item 12.

As in clam 106, Hannaford et al. teaches of wherein the linkage is further coupled to the actuator, column 1 lines 29-31, column 4 lines 25-55, wherein various links are taught..

As in clam 108, Hannaford et al. teaches of wherein a magnitude of the haptic feedback is increased in response to an increase in the measured force, column 2 lines 10-30.

As in clam 109, Hannaford et al. teaches of wherein the outputting haptic feedback further includes simulating friction, column 2 lines 10-30.

As in clam 110, Hannaford et al. teaches of wherein the actuator outputs the haptic feedback upon the measured force being greater than a desired threshold, column 2 lines 10-25, wherein the tissue having shape, texture and force resistance variables at different location provides for feedback when different tissue locations apply a specific force resistance.

As in clam 111, Hannaford et al. teaches of further comprising controlling an indexing function of a user interface device based on the measured force, column 2 lines 10-5, wherein the user as able to trace virtual objects and point them out within the virtual environment, said pointing out feature being equivalent to indexing.

Response to Arguments

2. Applicant's non-arguments filed 9/19/2006 have been fully considered but they are not persuasive. Applicant claims the same subject matter anticipated by Hannaford et al. (5642469).

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **David L. Lewis** whose telephone number is **(571) 272-7673**. The examiner can normally be reached on MT and THF from 8 to 5. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala, can be reached on **(571) 272-7681**. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571)-273-8300.

4. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Examiner: David L. Lewis
September 30, 2006